

E. The sight of small but entire fish excites the newly hatched skimmer much more than does macerated fish. Terns are not so excited until after the first week.

F. The action of pecking is instinctive to a certain extent, but is acquired very slowly in this way. By imitation it is learned quickly and is performed successfully within a few minutes.

G. Flight is wholly instinctive, the terns learning the use of their wings as soon as the primaries are large enough to support them.

BACHMAN'S WARBLER BREEDING IN LOGAN COUNTY, KENTUCKY.

BY G. C. EMBODY.

BACHMAN'S WARBLER (*Helminthophila bachmani*) first came to my notice April 26, 1905, when two birds, from their song, were mistaken for Worm-eating Warblers. They were feeding in a maple tree situated in a high, dry wood about ten miles northeast of Russellville, Ky., quite an unusual place for *bachmani*, but of the right sort for *vermivorus*.

Although the surrounding country was searched for a likely breeding ground, none was found nor were more warblers seen.

My field work was continued the following spring (1906) and on May 14, I came upon a swamp fairly swarming with warblers, if one were to judge from the great confusion of songs.

These, one by one, disentangled themselves to my ear into the songs of the Cerulean, Parula, Kentucky, Hooded, Black and White, and Blue-winged Warblers and Redstart. But at frequent intervals there were faint trills which in the open might have passed by as coming from the Chipping Sparrow. I counted several of these coming from as many directions and decided that there were Bachman's Warblers about.

The first song was traced to its source only a short distance away

where I found a small bird sitting quietly on an elm branch about fifteen feet up. A distinct black patch on the upper breast certified to its identity as a Bachman's Warbler.

The next bird, I found in the top of a forty foot oak, sitting close to a large horizontal limb. At times the song seemed to proceed from the different trees round about but investigation invariably showed the bird sitting motionless upon the same limb.

It was while trying to locate the third bird that I brushed past some bushes and heard a bird flutter to the ground. I looked down in time to get a glimpse of a bird scurrying along the ground. Unable to identify the bird accurately, or the nest with three white eggs which occupied the same bush, I waited for her to return when she was collected and found to be a female *bachmani*.

The nest was woven into a tangle of cane and blackberry branches about two feet from a slightly elevated bit of ground within a few feet of a pool of stagnant water. Indeed, these black pools were numerous throughout the swamp.

Lined with a few hairs and some dark colored fibers, resembling tendrils, and covered with several layers of dried leaves held firmly in place by interwoven grasses and rootlets, this nest might have been mistaken for that of the Indigo Bunting.

The eggs measure as follows: .655 × .468, .643 × .468, .631 × .474 inches.

The swamp may be characterized as a low bottom which receives considerable back water during the early spring, but in May is drained leaving only stagnant pools. The tulip tree, sweet and black gums, sycamore, elm and various oaks occur in abundance.

About a mile to the southeast is a second swamp, of three hundred acres or more, bordering a creek of considerable size. This was searched for warblers but fewer *bachmani* were found here than in the first swamp. A solitary Prothonotary Warbler was feeding in some bushes in the centre of a large pool, the only one seen in Logan County.

I counted fourteen male *bachmani* in the first swamp and but eight males in the second swamp.